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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/577,805	05/24/2000	Thomas T. Hansen	1063.004US1	4540

21186 7590 07/19/2002

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EXAMINER

JONES, JUDSON

ART UNIT	PAPER NUMBER
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2834

DATE MAILED: 07/19/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/577,805

Applicant(s)

HANSEN ET AL.

Examiner

Judson H. Jones

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8, 10-14, 16-20, 22, 24, 25 and 27-74 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 24, 25 and 27-74 is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-14, 16-20 and 22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4. 6) ☐ Other:

DETAILED ACTION

Applicant provided a "clean version of the pending claims" in the response of 6/26/02 that omitted claims 24, 27, 28 and 32-74. The clean version of those claims from the response of 12/21/01 have been not been cancelled.

Applicant's arguments with respect to claims 1-8, 10-20 and 22 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-8, 10-14, 16-20 and 22 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. The cooling means for the magnetostrictive element, the tubular magnetic biasing means having a middle section with a radial cross section less than that of the endsections and the improved flux path that reduces lost flux are critical or essential to the practice of the invention. A magnetostrictive transducer capable of providing power in excess of three kilowatts that does not include a cooling means for the magnetostrictive element, the tubular magnetic biasing means having a middle section with a radial cross section less than that of the endsections and the improved flux path that reduces lost flux is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). Also see the MPEP section 2172.01.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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Claims 1-8, 10-14, 16-20 and 22 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: the cooling means for the magnetostrictive element, the tubular magnetic biasing means having a middle section with a radial cross section less than that of the endsections and the improved flux path that reduces lost flux. Applicant is reciting conventional transducer elements such as a housing, a transducer made from a giant magnetostrictive material, means for producing a magnetic field and an acoustic element for channeling ultrasonic energy to perform work and then goes on to claim means for providing power in excess of three kilowatts. The elements recited by the Applicant will not provide that kind of power without at least the addition of a cooling means, a tubular biasing means having a middle section with a radial thickness less than that of the end sections and an improved flux path to reduce the amount of flux lost inside the system.

Allowable Subject Matter

Claims 24, 25 and 27-74 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record does not disclose or teach a high power transducer having a cooling means, a tubular biasing means having a middle section with a radial thickness less than that of the end sections and an improved flux path to reduce the amount of flux lost inside the system as recited in claim 24. The prior art of record does not disclose or teach a magnetostrictive actuator having first and second flux return elements adjacent to the first and second ends of a giant magnetostrictive element where the actuator contains a refrigeration system as recited in claim 29. The prior art of record does not disclose or teach an ultrasonic transducer containing a

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plurality of sub-motors, each containing a prestress bolt located proximate to an active element combined with a refrigeration system and a master wave-guide as recited in claims 32 and 53.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Judson H Jones whose telephone number is 703-308-0115. The examiner can normally be reached on 8-4:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on 703-308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3431 for regular communications and 703-305-3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

JHJ *JHJ*
July 17, 2002

[Signature]
NESTOR RAMIREZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800